

Name: _____

Date: _____

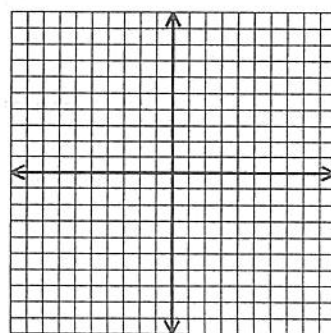
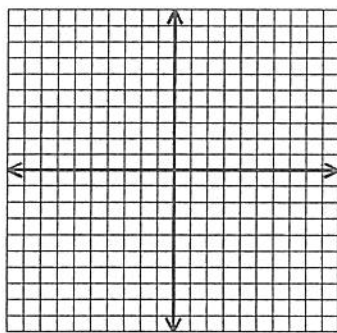
PC: Reducible Functions

Undefined: $\frac{a}{b}$ where $b = 0$ and $a \neq 0$

Indeterminate: $\frac{a}{b}$ where $b = 0$ and $a = 0$

A rational function that is indeterminate for a value of x is *reducible*. A "hole" occurs at the value(s) of x which make the given function indeterminate and the reduced fraction defined.

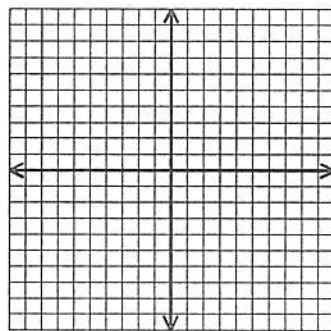
Is the graph of $y = \frac{x}{x}$ the same as the graph of $y = 1$?



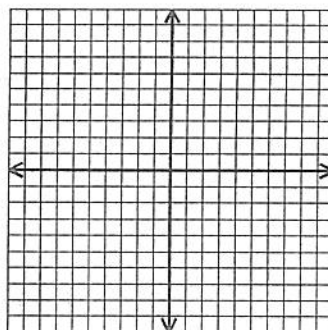
If a function is reducible use the reduced function when finding the intercepts.

Graph each of the following. State the domain, range, and any intercepts and asymptotes.

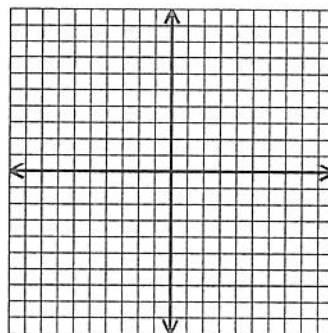
1. $y = \frac{x^2 - 4}{x + 2}$



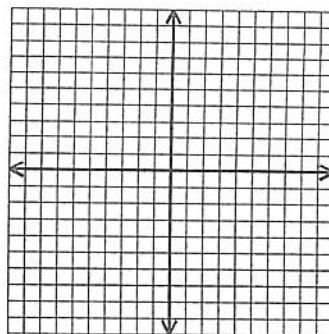
2. $y = \frac{3-x}{x^2-5x+6}$



3. $y = \frac{(x+1)(x+3)(x-3)(x-2)}{(x+1)(x-2)}$



4. $y = \frac{x^3 - 1}{x - 1}$



Practice

Graph each of the following. State the domain, range, and any intercepts and asymptotes.

1. $y = \frac{x^2 - 9}{x + 3}$

2. $y = \frac{x^2 - x - 6}{x - 3}$

3. $y = \frac{x^2 - 16}{x + 4}$

4. $y = \frac{x + 1}{x^2 - 1}$

5. $y = \frac{x - 1}{x^2 + x - 2}$

6. $y = \frac{1 + x - 2x^2}{x - 1}$

7. $y = \frac{x^3 - 8}{x - 2}$

8. $y = \frac{x - 1}{x^2 - 1}$

9. $y = \frac{x^3 - 2x^2 - 3x + 6}{2 - x}$